i and *h*.

1900.203	194°.5	45″.42	—13.5
.239	195 .4	45 .97	—14.0
1901.22	195°.0	45″.70	—13.8

o and *j*.

1901.159	114°.9	71″.71	—13.0
.184	114 .7	72 .78	—14.0
.239	114 .5	71 .85	—13.5
1901.19	114°.7	72″.11	—13.5

o and *l*.

1901.159	144°.2	61″.39	—13.5
.184	144 .2	61 .68	—13 0
.239	144 .3	61 .99	—13.0
1901.19	144°.2	61″.69	—13.2

k and *m*.

1901.203	100°.4	21″.39	—13.5
.239	100 .2	22 .01	—13.0
1901.22	100°.3	21″.70	—13.2

R. G. AITKEN.

THE VELOCITY OF GROOMBRIDGE 1830 IN THE LINE OF SIGHT.

The star No. 1830 in GROOMBRIDGE'S catalogue has been called the "Runaway Star," on account of its large proper motion. Its position in the heavens is changing at the rate of 7″.05 per year,—a speed sufficient to carry it over one degree in five hundred years. This was the maximum stellar motion known up to the year 1898, at which date an 8th-magnitude star in the southern hemisphere was found to have a proper motion of 8″.7 per annum.

Several determinations of the parallax of Groombridge 1830 have been made. The separate results differ widely in value, but they are in substantial agreement in placing the star at a great distance; it is probable that at least twenty stars with large proper motions are nearer than Gr. 1830. From a consideration of the merits of the individual determinations, NEWCOMB has adopted 0″.14 as its most probable parallax. Assuming this to be its true value, the component of the star's velocity at right angles

to the line of sight is 240 kilometers (150 miles) per second. This is by far the largest cross-motion assigned for any of the stars whose parallaxes have been measured.

Inasmuch as the proper motion, both in arc and in linear measure, takes account of the component of motion at right angles to the line of sight, it is of unusual interest to have a determination of the component of speed in the line of sight. This determination has been made with the Mills spectrograph, after replacing its three dense prisms by one light prism.

Four spectrum photographs have been secured in the past two months, of which two are very satisfactory, and one is excellent. The results given by the four are in substantial agreement; those given by the best two are — 93 and — 97 kilometers (58 and 60 miles approach) per second, respectively. Their mean value, -95^{km}, is possibly uncertain to the extent of five kilometers.

In view of the very great uncertainty existing in the value of the parallax, no interest attaches to the value of the angle resulting for the direction of the star's motion in space.

Gr. 1830 is of the 6.5 visual magnitude. The photographic magnitude on the Draper Catalogue standard, must be in the vicinity of 7.5, though this catalogue assigns it as 6.63. The spectrum is approximately of the solar type, though it may incline strongly toward the characteristics of *Procyon* or *α Persei.*

The best photograph was secured with an exposure of two hours, in average seeing, using slit-width $0^{mm}.032$. The measurable lines on the plate are between λλ 4000 – 4415. The region λ 4415 – Hβ is over-exposed. The spectrum is about $0'.25$ in width. The light flint prism gives about two ninths as much dispersion as the three Mills prisms.

The greatest interest of the observations lies in the fact that fairly accurate determinations of stellar velocities are shown to be possible down to the eighth or ninth photographic magnitudes, provided their spectra contain well-defined lines.

W. W. CAMPBELL.

COMET NOTES.

Professor KREUTZ has computed elliptic elements for Comet *c* 1900 (GIACOBINI) which show that it is a member of the same group to which Comet Wolf and Comet Barnard belong. The periodic time is a little less than seven years. Long-continued